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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,049	07/11/2003	Peter Mardilovich	200300109-1	5611

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EXAMINER	
ABRAMOWITZ, HOWARD E	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/618,049	MARDILOVICH ET AL.	
	Examiner	Art Unit	
	Howard E. Abramowitz	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *21-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-30* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/13/04, 7/11/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-20 in the reply filed on 1/26/06 is acknowledged.

Information Disclosure Statement

The information disclosure statement filed 12/13/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 6-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US Patent Application No. 2005/0174407).

Referring to claim 1, Johnson et al. discloses that this method can be used to deposit an electroless active layer of $PdCl_2$ and $SnCl_2$ using an inkjet method to form patterns of the electroless active layer on the substrate in doing so it limits the use of expensive palladium precursors (paragraph 22). Johnson et al. also teaches to use the method of inkjet printing to deposit a metal composition containing a metal salt and inkjetting a reducing agent composition onto the pattern so that the reducing agent contacts the metal composition and reacts with the metal salt to form a reduced metal (paragraphs 9, 27). Johnson et al. does not teach to perform the activation step followed by the electroless plating step. However it would be obvious to do so as Johnson et al. teaches applying an activating agent to the substrate (paragraph 30) before depositing the metal, and it teaches that the inkjetting method can be used to apply the activating agent, therefore it would be obvious to one of ordinary skill in the art to use the inkjetting method as the method for applying the activating agent as this method conserves the expensive palladium catalyst.

Referring to claims 2 and 3, Johnson et al. discloses that the metal salt can be Co, Ni, Au, Ag, Pd or Cu (paragraph 27)

Referring to claims 6 and 7, Johnson et al. discloses that the reducing agent is hydrazine (paragraph 27).

Referring to claim 8, Johnson et al. discloses that the substrate can be a printed circuit board (paragraphs 2 and 18). It would be obvious to one of ordinary skill in the art that a printed circuit board would be made of a polymer.

Referring to claim 9, Johnson et al. does not disclose heating the substrate, however, without the particular disclosure of a temperature it would be obvious to perform the operation at room temperature which would fall between 20 and 90 °C.

Referring to claim 10, Johnson et al. discloses using a series of inkjet heads which would repeat the process so that a thicker deposit is formed (paragraph 21).

Referring to claim 11, Johnson et al. does not disclose a thickness of the deposited film, however, the thickness of the layer controls the electrical properties of the deposited layer. Therefore the thickness is a result effective parameter in that it effects the electrical properties in a printed circuit board. It would have been obvious to have adjusted the thickness to values in the claimed ranges through routine experimentation so as to optimize the electrical properties, especially in the absence of a showing of a criticality for using values in the claimed ranges.

Referring to claim 12, Johnson et al. discloses that the point of coincidence is at the substrate (paragraph 24). Accordingly there would be an area of the metal composition and the reducing agent that are not inkjetted on the same portion of the pattern as the coincidence would not completely overlap.

Referring to claims 13-15, Johnson et al. discloses using an initiator of palladium chloride and tin chloride (paragraph 22).

Referring to claim 16, as discussed above, the initiator is deposited by inkjetting.

Referring to claim 17, Johnson et al. discloses that it is known to immerse substrates in a solution of the initiator solution (paragraph 22).

Referring to claim 18, it would be obvious to one of ordinary skill in the art that a printed circuit board contains non-continuous patterns and it would therefore be obvious to deposit the initiator in a manner that is non-continuous.

Referring to claim 20, Johnson et al. discloses as discussed above the pattern is for use in a printed circuit board.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. in view of Wells (US Patent No. 3,918,927).

Referring to claim 19, the activator solution is formed from a palladium chloride and a stannous chloride solution. Wells teaches that these catalyst solutions are performed in acidic environments (column 11 lines 54-57). Accordingly an acid would etch the substrate, since the activator solution is being applied in a pattern the substrate would be roughened (marred) because of the acid in the prescribed pattern.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. in view of JP 08319575 A ('575).

Referring to claims 4 and 5, Johnson et al. discloses that a palladium salt can be used as the metal composition but does not disclose a specific metal salt. However, '575 teaches that $Pd(NH_3)_4Cl_2$ can be used as the metal salt for an electroless deposition (abstract). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use $Pd(NH_3)_4Cl_2$ as the metal salt in the metal composition with a reasonable expectation of successfully forming the reduced metal coating.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard E. Abramowitz whose telephone number is 571-272-8557. The examiner can normally be reached on monday-friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HEA

HEA

MICHAEL CLEVELAND
PRIMARY EXAMINER